


APR 26 2006

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Krishna A. BHARAT et al.	§	Confirmation No.:	8878
Serial No.:	09/418,418	§	Group Art Unit:	2172
Filed:	10/15/1999	§	Examiner:	B. N. To
For:	Method For Ranking	§	Docket No.:	200308296-1
	Hypertext Search Results	§		
	By Analysis Of Hyperlinks	§		
	From Expert Documents	§		
	And Keyword Scope	§		

I hereby certify that this paper is being transmitted to the U.S. Patent and Trademark Office facsimile number (571) 273-8300.  
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**RESPONSE TO NOTIFICATION OF  
NON-COMPLIANT APPEAL BRIEF (37 CFR 41.37)**

**Mail Stop Appeal Brief – Patents**  
Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450


April 26, 2006

Sir:

In response to the Notification of Non-Compliant Appeal Brief dated April 10, 2006, Appellants submit a complete new Appeal Brief. In said Notice, the Examiner objected to Appellants' Appeal Brief filed December 20, 2005, because it allegedly "fails to: (1) identify, for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function under 35 U.S.C. § 112, sixth paragraph, and/or (2) set forth the structure, material, or acts described in the specification as corresponding to each claimed function with reference to the specification by page and line number, and to the drawings, if any, by reference characters (37 CFR 41.37(c)(1)(v))." A new Appeal Brief is submitted herewith that comports with this rule.

Respectfully submitted,

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**APPEAL BRIEF**

**Mail Stop Appeal Brief – Patents**  
Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Date: April 26, 2006

Sir:

In Response to the Notice of Panel Decision from Pre-Appeal Brief Review dated December 27, 2005, Appellants hereby submit this Appeal Brief in connection with the above-identified application. A Notice of Appeal was filed via facsimile on November 17, 2005.

**Appl. No. 09/418,418**  
**Appeal Brief dated April 26, 2006**  
**Reply to Notice of Non-Compliance of April 10, 2006**

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**I. REAL PARTY IN INTEREST**

The real party in interest is the Hewlett-Packard Development Company (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas, through its merger with Compaq Computer Corporation (CCC) which owned Compaq Information Technologies Group, L.P. (CITG). The assignment from the CCC to CITG was recorded on November 16, 2001, at Reel/Frame 012305/0944. The Change of Name Document was recorded on May 12, 2004, at Reel/Frame 014628/0103.

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**II. RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any related appeals or interferences.

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**III. STATUS OF THE CLAIMS**

Originally filed claims: 1-21.  
Claim cancellations: 13.  
Added claims: 22-23.  
Presently pending claims: 1-12 and 14-23.  
Presently appealed claims: 1-12 and 14-23.

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**IV. STATUS OF THE AMENDMENTS**

No claims were amended after the final Office action dated October 5, 2005.

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## **V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

### **Claim 1:**

"A computer-implemented method for searching a large number of hypertext documents in accordance with a search query, comprising:

forming a set of expert documents from the set of all hypertext documents  
crawled without reference to the search query;  
ranking the expert documents in accordance with the search query;  
ranking target documents pointed to by the ranked expert documents; and  
returning a results list based on the ranked target documents."

### **Preamble:**

"A computer-implemented method for searching a large number of hypertext documents in accordance with a search query, comprising:"

Claim 1 is directed to a computer based method for searching a database having a large number of documents, e.g., the WWW, for documents relating to a subject or query submitted by a user. See page 1, lines 5-6; page 3, lines 26-28; page 4, lines 18-20.

### **First limitation:**

"forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query"

The first limitation covers a first phase of the method known as expert lookup. See page 4, lines 1-2. Expert lookup may be performed before any search query is received, i.e., in a preprocessing step, because it does not use any topic to identify experts. See page 4, lines 4-8; page 6, lines 23-25; and steps 202-204 in Fig. 2(a). Figs. 3(a) and 3(b) provide alternative methods for determining expert pages in the first phase of the invention. These methods are described in the specification beginning at page 8, line 24 through page 9, line 9. The list of expert pages is created without reference to a topic. The process for



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identifying experts is based on factors other than specific topics. See page 4, lines 9-10, where the query is used to process the expert pages, which means the expert pages were identified first and then the query is used to select from the expert pages based on the topic of the query. See page 8, lines 25-27 where the subset of expert pages is a good source of links on specific topics, "albeit unknown".

**Second limitation:**

"ranking the expert documents in accordance with the search query"

In the second limitation, a search query is used to rank the expert pages identified in the first limitation. See Fig. 2(a), steps 204-206; and Fig. 2(b), steps 214-216. This is a first part of a second phase of the invention which is a topic-based search. See page 4, lines 9-12; page 6, lines 25-27; and Fig. 2(a), steps 204-206; and Fig. 2(b), steps 214-216. For more details of the topic based ranking of experts, see Fig. 8 and the specification at page 10, line 11, through page 11, line 19. The search of the expert documents after receipt of a topic-based query is dramatically simplified because the list of expert documents is dramatically smaller than all the documents on the WWW. This step therefore results in a relatively small subset of the expert documents from the first phase that are related to the query topic.

**Third limitation:**

"ranking target documents pointed to by the ranked expert documents"

In the third limitation, the topic ranking is extended to documents to which the ranked experts of the second limitation point, i.e., target documents. See page 4, lines 13-17; Fig. 2(a) steps 206-208; and Fig. 2(b), step 218. For details of the target ranking process, see Fig. 9 and the specification at page 11, line 21 through page 13, line 10. The target document set is dramatically smaller than the set of all documents on the web which may include the query topic. But the target

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documents are qualified by having been identified, pointed to, by the expert documents that (a) were identified in the first phase of the process and (b) have been ranked as relating to the topic-based query. See page 13, lines 13-15.

Fourth limitation:

"returning a results list based on the ranked target documents"

In this limitation, a results list based on the topic ranked target documents is returned. See page 4, line 23; page 5, lines 1-2; page 6, lines 28-29; page 13, lines 13-14 and lines 22-24; Fig. 2(a), step 208 and Fig. 2(b), step 218.

**Claim 20:**

"An apparatus that searches a large number of hypertext documents in accordance with a search query, comprising:

- a software portion configured to form a set of expert documents from the set of all documents crawled without reference to the search query;
- a software portion configured to rank the expert documents in accordance with the search query;
- a software portion configured to rank target documents pointed to by the ranked expert documents; and
- a software portion configured to return a results list based on the ranked target documents."

Preamble:

"An apparatus that searches a large number of hypertext documents in accordance with a search query"

Claim 20 is directed to computer apparatus for searching a database having a large number of documents, e.g., the WWW, for documents relating to a subject or query submitted by a user. See page 1, lines 5-6; page 3, lines 26-28; page 4, lines 18-20

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**First limitation:**

"a software portion configured to form a set of expert documents from the set of all documents crawled without reference to the search query"

The first limitation covers a software portion configured to perform the first step of the method of claim 1, in particular the first phase of the method known as expert lookup. See page 4, lines 1-2. Expert lookup may be performed before any search query is received, i.e., in a preprocessing step, because it does not use any topic to identify experts. See page 4, lines 4-8, page 6, lines 23-25, and steps 202-204 in Fig. 2(a). Figs. 3(a) and 3(b) provide alternative methods for determining expert pages in the first phase of the invention. These methods are described in the specification beginning at page 8, line 24 through page 9, line 9. The list of expert pages is created without reference to a topic. The process for identifying experts is based on factors other than specific topics. See page 4, lines 9-10, where the query is used to process the expert pages, which means the expert pages were identified first and then the query is used to select from the expert pages based on the topic of the query. See page 8, lines 25-27 where the subset of expert pages is a good source of links on specific topics, "albeit unknown".

**Second limitation:**

"a software portion configured to rank the expert documents in accordance with the search query"

The second limitation covers a software portion configured to perform the second step of the method of claim 1, in which a search query is used to rank the expert pages identified in the first limitation. See Fig. 2(a), steps 204-206; and Fig. 2(b), steps 214-216. This is a first part of a second phase of the invention which is a topic-based search. See page 4, lines 9-12, page 6, lines 25-27, and Fig. 2(a), steps 204-206; and Fig. 2(b), steps 214-216. For more details of the topic based ranking of experts, see Fig. 8 and the specification at page 10, line

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11, through page 11, line 19. The search of the expert documents after receipt of a topic-based query is dramatically simplified because the list of expert documents is dramatically smaller than all the documents on the WWW. This step therefore results in a relatively small subset of the expert documents from the first phase that are related to the query topic.

**Third limitation:**

"a software portion configured to rank target documents pointed to by the ranked expert documents"

The third limitation covers a software portion configured to perform the third limitation of claim 1 in which the topic ranking is extended to documents to which the ranked experts of the second limitation point, i.e., target documents. See page 4, lines 13-17; Fig. 2(a) steps 206-208; and Fig. 2(b), step 218. For details of the target ranking process, see Fig. 9 and the specification at page 11, line 21 through page 13, line 10. The target document set is dramatically smaller than the set of all documents on the web which may include the query topic. But the target documents are qualified by having been identified, pointed to, by the expert documents that (a) were identified in the first phase of the process and (b) have been ranked as relating to the topic-based query. See page 13, lines 13-15.

**Fourth limitation:**

"a software portion configured to return a results list based on the ranked target documents"

The fourth limitation covers a software portion configured to perform the fourth limitation of the method of claim 1, in which a results list based on the topic ranked target documents is returned. See page 4, line 23; page 5, lines 1-2; page 6, lines 28-29; page 13, lines 13-14 and lines 22-24; Fig. 2(a), step 208 and Fig. 2(b), step 218.

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**Claim 21:**

"A computer program product, comprising:

a computer usable medium having computer readable instructions stored therein to search a large number of hypertext documents in accordance with a search query, including:

computer readable program code devices for causing a computer to form a set of expert documents from the set of all documents crawled without reference to the search query;

computer readable program code devices for causing a computer to rank the expert documents in accordance with the search query;

computer readable program code devices for causing a computer to rank target documents pointed to by the ranked expert documents; and

computer readable program code devices for causing a computer to return a results list based on the ranked target documents."

Preamble and computer medium limitation:

"A computer program product, comprising:

a computer usable medium having computer readable instructions stored therein to search a large number of hypertext documents in accordance with a search query"

Claim 21 is directed to computer program product comprising a computer usable medium containing computer readable instructions for searching a database having a large number of documents, e.g., the WWW, for documents relating to a subject or query submitted by a user. See page 1, lines 5-6; page 3, lines 26-28; page 4, lines 18-20.

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**First limitation:**

"computer readable program code devices for causing a computer to form a set of expert documents from the set of all documents crawled without reference to the search query"

The first limitation covers computer readable program code devices for causing a computer to perform the first step of the method of claim 1, in particular the first phase of the method known as expert lookup. See page 4, lines 1-2. Expert lookup may be performed before any search query is received, i.e., in a preprocessing step, because it does not use any topic to identify experts. See page 4, lines 4-8, page 6, lines 23-25, and steps 202-204 in Fig. 2(a). Figs. 3(a) and 3(b) provide alternative methods for determining expert pages in the first phase of the invention. These methods are described in the specification beginning at page 8, line 24 through page 9, line 9. The list of expert pages is created without reference to a topic. The process for identifying experts is based on factors other than specific topics. See page 4, lines 9-10, where the query is used to process the expert pages, which means the expert pages were identified first and then the query is used to select from the expert pages based on the topic of the query. See page 8, lines 25-27 where the subset of expert pages is a good source of links on specific topics, "albeit unknown".

**Second limitation:**

"computer readable program code devices for causing a computer to rank the expert documents in accordance with the search query"

The second limitation covers computer readable program code devices for causing a computer to perform the second step of the method of claim 1, in which a search query is used to rank the expert pages identified in the first limitation. See Fig. 2(a), steps 204-206; and Fig. 2(b), steps 214-216. This is a first part of a second phase of the invention which is a topic-based search. See page 4, lines 9-12, page 6, lines 25-27, and Fig. 2(a), steps 204-206; and Fig. 2(b), steps 214-

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216. For more details of the topic based ranking of experts, see Fig. 8 and the specification at page 10, line 11, through page 11, line 19. The search of the expert documents after receipt of a topic-based query is dramatically simplified because the list of expert documents is dramatically smaller than all the documents on the WWW. This step therefore results in a relatively small subset of the expert documents from the first phase that are related to the query topic.

**Third limitation:**

“computer readable program code devices for causing a computer to rank target documents pointed to by the ranked expert documents”

The third limitation covers computer readable program code devices for causing a computer to perform the third limitation of claim 1 in which the topic ranking is extended to documents to which the ranked experts of the second limitation point, i.e., target documents. See page 4, lines 13-17; Fig. 2(a) steps 206-208; and Fig. 2(b), step 218. For details of the target ranking process, see Fig. 9 and the specification at page 11, line 21 through page 13, line 10. The target document set is dramatically smaller than the set of all documents on the web which may include the query topic. But the target documents are qualified by having been identified, pointed to, by the expert documents that (a) were identified in the first phase of the process and (b) have been ranked as relating to the topic-based query. See page 13, lines 13-15.

**Fourth limitation:**

“computer readable program code devices for causing a computer to return a results list based on the ranked target documents”

The fourth limitation covers computer readable program code devices for causing a computer to perform the fourth limitation of the method of claim 1, in which a results list based on the topic ranked target documents is returned. See

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page 4, line 23; page 5, lines 1-2; page 6, lines 28-29; page 13, lines 13-14 and  
lines 22-24; Fig. 2(a), step 208 and Fig. 2(b), step 218.



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#### **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The following grounds for rejection are as stated in the Office action of 04/21/2005, which was referenced in the final Office action of 10/05/2005 for a statement of the rejections.

Whether claims 1, 20 and 21-23 are patentable under 35 U.S.C. § 103(a) over Chakrabarti et al. (Automatic resource compilation by analyzing hyperlink structure and associated Text April 14, 1998) in view of Page (U.S. Patent No. 6,285,999 B1). Claims 15-18 are also discussed under this ground for rejection and presumably covered by it.

Whether claims 5-10 and 19 are patentable under 35 U.S.C. § 103(a) over Chakrabarti et al. (Automatic resource compilation by analyzing hyperlink structure and associated Text April 14, 1998) further in view of Page (U.S. Patent No. 6,285,999 B1) and further in view of Yu (U.S. Patent No. 6,167,552).

Whether claims 11-12 are patentable under 35 U.S.C. § 103(a) over Chakrabarti et al. (Automatic resource compilation by analyzing hyperlink structure and associated Text April 14, 1998) in view of Page (U.S. Patent No. 6,285,999 B1) in view of Chakrabarti (U.S. Patent No. 4,418,433).

Claim 14 is not specifically discussed under any of the grounds for rejection and it is not clear which applies.

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## **VII. ARGUMENT**

### **A. Rejection of claims 1, 20 and 21-23 under 35 U.S.C. 103(a) over Chakrabarti et al. (Automatic resource compilation by analyzing hyperlink structure and associated Text April 14, 1998) in view of Page (U.S. Patent No. 6,285,999 B1).**

#### **1. Claims 1, 20, and 21**

Regarding claims 1, 20, and 21, the independent claims, the Examiner alleges that Chakrabarti teaches:

ranking the expert documents in accordance with the search query by hub score;  
ranking target documents pointed to by the ranked expert documents (authority page and ranking page); and  
returning a results list based on the ranked expert documents.

The Examiner notes that Chakrabarti does not explicitly teach forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query, but asserts that Page discloses forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query (col. 2, lines 51-54).

The Examiner then asserts that it would have been obvious to include crawling and ranking the crawled documents based on the measure of importance into Chakrabarti in order to organize relevancy of documents in the world wide web to assist the user in the search process.

The Appellants disagree with the Examiner's interpretations of Chakrabarti and Page. The Appellants submit that there is no suggestion in the either reference to combine the references. The Appellants submit that no combination of the references would result in a system that would make the present invention obvious.

As noted by the Examiner, Chakrabarti does not teach forming a set of experts from all documents searched without reference to a search topic. In fact, Chakrabarti does not teach forming a set of experts at all. Chakrabarti only teaches ranking of subsets of documents that are produced in topic based

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searches, i.e., ranking documents that relate to a particular topic. To do that, Chakrabarti necessarily starts with a topic based search.

As described in Section 2, Algorithm, Chakrabarti starts his process by submitting a topic to a term based search engine, in this case AltaVista. That is, Chakrabarti starts his process after receiving a query with search terms. From this search, Chakrabarti obtains a root set of about 200 documents containing the topic term(s). The root set is augmented by adding all documents that point to the root set and those that are pointed to by the root set. Augmenting is done twice to include all documents within a link distance of two. In Section 2.2, Chakrabarti suggests that multiple augmented sets for various topics may be stored. Chakrabarti also states that the principal bottleneck in his process will be crawling the web and extracting all the root and augmented sets. Chakrabarti, in essence, teaches forming a topic based subdivision or index of the WWW.

Chakrabarti in Section 1.1 notes that the use of linking to rank documents is known. Chakrabarti then teaches various prior art link based algorithms that he uses to build his specific link based ranking system. In Section 2, Chakrabarti discloses his specific linked based ranking system that he uses to rank the augmented sets previously produced, i.e., sets already limited to a particular topic. In this description, Chakrabarti describes modifications made "so as to maintain the focus on the topic." He notes further that the mechanism described in Section 2.1 assumes "that this topic-dependent link weighting has been done."

Therefore, all of the searching and ranking taught by Chakrabarti includes or is based on a specific topic, i.e., a search query. Chakrabarti never teaches forming a set of expert documents from all hypertext documents without reference to a search query. Chakrabarti does not teach ranking expert documents, but instead ranking a topic based subset of documents. Chakrabarti returns a set of ranked documents based on his augmented set that includes documents pointing to his root set, the root set itself, and documents pointed to by the root set. Chakrabarti does not teach returning a results list based on the ranked target documents, that would correspond to a portion of, but not all of, his augmented list.

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Page teaches a particular algorithm for assigning nodes in a link based database. Ranking is link based, as discussed above with reference to Chakrabarti. The portion of Page cited by the Examiner, col. 2, lines 51-54, merely states that the invention is based on use of the linked structure of a database to assign a rank to each document. As noted in the following sentence, col. 2, lines 54-57, this is in addition to determining relevance based on the intrinsic content and the anchor text, both of which are topic based. Thus, Page does not teach ranking all documents crawled without reference to a search query. Page teaches an improvement to topic based searching.

At col. 7, lines 37-55, Page teaches an implementation in which a user's homepage and/or bookmarks are given a large initial importance. This indicates to the system that the homepage and/or bookmarks contain subjects, i.e., topics, of high importance. This trains the system to recognize pages related to the person's interests, i.e., certain topics. Thus, Page teaches ranking documents that have already been grouped based on topics, not ranking without reference to the topic.

At col. 8, lines 6-20, Page teaches another application in which "a web crawler explores the web and creates an index of the web content, as well as a directed graph of nodes corresponding to the structure of hyperlinks. The nodes of the graph (i.e., pages of the web) are then ranked according to importance as described above in connection with various exemplary embodiments of the present invention." Thus, the teaching of Page is essentially the same as the teachings of Chakrabarti, i.e., after forming a subset of web documents based on a topic, a link based ranking system is used to rank the subset of documents.

Thus, neither Chakrabarti nor Page teach forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query. Therefore, no combination of Chakrabarti and Page could teach forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query.

In claims 1, 20 and 21, a set of expert documents is first formed without reference to a topic or search query. In the second step, the expert documents

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are ranked based on the search query. Then, target documents pointed to by the ranked experts are ranked and results based on the ranking of the target documents are returned. Since neither Chakrabarti nor Page teach forming a set of expert documents without reference to a search query, they cannot teach ranking a set of expert documents formed without reference to a topic or search query.

No combination of Chakrabarti and Page could teach such a process, since they both start with topic based searches. The only reasonable combination of Chakrabarti and Page would be to substitute Page's specific link based ranking system for the ranking system taught by Chakrabarti. That ranking system is used to rank a topic based subset of documents.

The processes of Chakrabarti and Page are similar to and possibly could be substituted for the second phase of the present invention. If the set of experts created in the first phase of the present invention is considered to be the entire database to be searched, then the processes of Chakrabarti and Page would produce a ranked list in response to a query similar to the present invention. However, Chakrabarti and Page do not teach forming such an expert subset and instead teach only starting with the entire database, e.g., the WWW. And, the processes of Chakrabarti and Page are more complicated, e.g., including documents linked by a link distance of two in both directions, than those used in the second phase of the present invention. By using the first phase of the present invention, the second phase may be simplified, e.g., by including only documents pointed to by the expert document, i.e., link distance of one in one direction.

Several advantages of the presently claimed invention illustrate the substantial differences from the references. As noted in the preceding sentence, the second phase may be simplified as compared to the references reducing the time and resources used to produce a ranked list after receipt of a query. As noted by Chakrabarti, the main bottleneck in its process is crawling the web and extracting the root and augmented sets. Since Chakrabarti starts with a topic, the process cannot begin until the query, i.e., the topic, is received. In the present invention, the first step of forming a set of expert documents can be performed at

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any time prior to receipt of a query, since it is performed "without reference to the search query." In one embodiment, this step would be performed at a time when the computer resources and the Internet are not otherwise in heavy use. For example, this step could be performed once a day, e.g., during the night or early morning hours. The resulting expert set could then be used each time a search query is received later in the day without having to crawl the entire web again. This process improves the efficiency of use of available computer resources and reduces the time between receipt of a search query and returning a results list to the requestor.

In view of these substantial differences, the Appellants submit that the independent Claims 1, 20 and 21 are patentable over the prior art. Since the remaining claims are all dependent claims which further limit Claim 1, the Appellants submit that the dependent claims are also patentable over the prior art.

**B. Conclusion**

For the reasons stated above, Appellants respectfully submit that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,



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#### **VIII. CLAIMS APPENDIX**

1. (Previously presented) A computer-implemented method for searching a large number of hypertext documents in accordance with a search query, comprising:

forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query;  
ranking the expert documents in accordance with the search query;  
ranking target documents pointed to by the ranked expert documents; and  
returning a results list based on the ranked target documents.

2. (Original) The computer-implemented method of claim 1, wherein the hypertext documents are pages in the world wide web.

3. (Original) The computer-implemented method of claim 1, wherein the hypertext documents are sites in the world wide web.

4. (Original) The computer-implemented method of claim 1, wherein the hypertext documents are documents in a hypertext database.

5. (Original) The computer-implemented method of claim 1, wherein an expert reverse index is constructed in memory for keywords appearing in the expert documents, the expert reverse index identifying the location of the keywords in the expert documents.

6. (Original) The computer-implemented method of claim 5, wherein a keyword of an expert document is included in the expert reverse index if the keyword is part of a key phrase that qualifies at least one URL in the expert document.

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7. (Original) The computer-implemented method of claim 6, wherein a key phrase qualifies a URL if the URL is within the scope of the key phrase in the expert document.

8. (Original) The computer-implemented method of claim 6, wherein a key phrase in an HTML title qualifies all URLs in the entire document.

9. (Original) The computer-implemented method of claim 6, wherein a key phrase in an HTML heading qualifies all URLs in that portion of the document before a next HTML heading in the document of greater or equal importance.

10. (Original) The computer-implemented method of claim 6, wherein a key phrase in an HTML anchor qualifies the URLs in the anchor.

11. (Previously presented) The computer-implemented method of claim 1, wherein forming a set of expert documents includes:

determining a document having at least a predetermined number of outlinks to be an expert document if the document also points to at least the predetermined number of targets on distinct non-affiliated hosts.

12. (Original) The computer-implemented method of claim 11, wherein expert documents additionally must point to documents that share the same broad classification.

13. (Canceled).



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14. (Original) The computer-implemented method of claim 1, wherein ranking target documents pointed to by the expert documents includes:

determining a plurality of edge scores for each target document, where an edge score is determined for edges between the expert documents and the target document;

determining a target score in accordance with the edge scores of the target document;

ranking the target documents in accordance with the target scores.

15. (Previously presented) The computer-implemented method of claim 14, further including:

determining an edge score only for those links to the target document from a predetermined number of top-ranked expert documents.

16. (Original) The computer-implemented method of claim 14, further including selecting target documents to be ranked that are linked to by at least two mutually non-affiliated selected expert documents, where the selected target also is not affiliated with the expert documents.

17. (Original) The computer-implemented method of claim 14, where an edge score between an expert document and a target document  $ES(E,T)$  is determined as follows, where ExpertScore reflects the rankings of the expert documents:

- a) find #occurrences of each keyword in all keyphrases of expert document E
- b) if the #occurrences for any keyword in E is 0:  $ES(E,T)=0$   
else  $ES(E,T)=\text{ExpertScore}(E) * \text{sum of \#occurrences for all keywords.}$

18. (Original) The computer-implemented method of claim 14, wherein, if two affiliated experts have edges to the same target, the edge having a lower edge score is discarded and is not used to determine the target score.

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19. (Previously presented) The computer-implemented method of claim 18, wherein two hypertext documents are affiliated if at least one of the following is true: 1) they share the same rightmost non-generic suffix and 2) they have an IP address in common.

20. (Previously presented) An apparatus that searches a large number of hypertext documents in accordance with a search query, comprising:

- a software portion configured to form a set of expert documents from the set of all documents crawled without reference to the search query;
- a software portion configured to rank the expert documents in accordance with the search query;
- a software portion configured to rank target documents pointed to by the ranked expert documents; and
- a software portion configured to return a results list based on the ranked target documents.

21. (Previously presented) A computer program product, comprising:

- a computer usable medium having computer readable instructions stored therein to search a large number of hypertext documents in accordance with a search query, including:
  - computer readable program code devices for causing a computer to form a set of expert documents from the set of all documents crawled without reference to the search query;
  - computer readable program code devices for causing a computer to rank the expert documents in accordance with the search query;
  - computer readable program code devices for causing a computer to rank target documents pointed to by the ranked expert documents; and
  - computer readable program code devices for causing a computer to return a results list based on the ranked target documents.

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22. (Previously presented) The computer-implemented method of claim 1, wherein ranking the expert documents in accordance with the search query comprises:

- determining a level score for each of the expert documents;
- determining a fullness factor for each key phrase on each of the expert documents; and
- determining an expert score for each expert document in accordance with the level score of the expert document and the fullness factors for the key phrases of the expert document.

23. (Previously presented) The computer-implemented method of claim 1, forming a set of expert documents occurs before a search query is received.

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**IX. EVIDENCE APPENDIX**

None.

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**X. RELATED PROCEEDINGS APPENDIX**

None.

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